

## REMARKS

New claims 15-20 have been added. No new matter was added. Thus, claims 1, 2 and 7-20 are pending. Arguments for the patentability of the claims over the prior art of record are presented. Accordingly, Applicants respectfully submit that the present application is in condition for allowance.

### **I. Claim Rejections - 35 USC §103(a)**

*In the non-final Office Action dated November 18, 2008, claims 1, 2 and 7-14 are rejected under 35 USC §103(a) as being obvious over JP 2002-069623 A in view of JP 2001-026860 A.*

It is clear from the disclosures of JP '623 and JP '860 that neither reference explicitly or inherently discloses the structure of the sputtering target required by independent claim 1 and dependent claims 7-14 of the present application.

In an attempt to overcome the deficiencies of the disclosures individually provided by JP '623 and JP '860, random method steps from these two references are selectively chosen and combined in a manner in which the Examiner states that a theoretically created product (based on the combination) has a composition which overlaps with that of the present invention and is produced by the same process, thus, the structural characteristics of this theoretically created product must be the same as the present invention. Applicants respectfully request reconsideration and removal of this rejection for the following reason.

As will be discussed in greater detail below, each cited prior art reference explicitly discloses an intended structure. Thus, Applicants respectfully submit that one of ordinary skill in the art would have no common sense reason for combining and/or rearranging and/or randomly picking and choosing method steps from these two references in a manner in which a structure not even disclosed by these references would be formed.

JP '623 discloses a Co-Cr-Pt-B sputtering target having a structure of a detailed and uniform organization in which "cells" are segmented by a network of boride. Each segmented "cell" is explicitly defined as a "dendrite" and has an average size of 200 $\mu$ m or less. This teaching and structural requirement is explicitly repeated numerous times throughout the English machine translation of JP '623. For example, see the Abstract, Claim 1 and Paragraph Nos. 0006, 0007, 0009, 0012-0019, 0026, 0027, and 0034 of JP '623. The "cell" being defined as a "dendrite" is specifically defined in Paragraph No. 0006 of JP '623.

The standard definition of the term "dendrite" as used in metallurgy is a characteristic tree-like structure of crystals growing as molten metal freezes, the shape produced by faster growth along energetically favorable crystallographic directions. This dendritic growth has significant consequences in regards to material properties.

In addition, JP '623 clearly requires the structure of a boride network that segments the "cell" or "dendrite". As clearly shown in the drawings of JP '623, the boride network itself is not segmented; rather, the boride network extends continuously in a web or net-like pattern or shape across and throughout the entire structure of the sputtering target.

The structure of the present invention is significantly different than that disclosed and required by JP '623. The structure of the sputtering target of the present invention does not comprise "cells" or "dendrites" segmented by a "boride network". Further, the structure of the sputtering target of the present invention does not have a boride network, or any continuous web-like network structure extending throughout the body of the sputtering target. Still further, the dendrite structure of the as-cast alloy is destroyed according to the present invention and is not segmented as "cells" within a boride network as required by JP '623.

Claim 1 of the present application requires a Co-Cr-Pt-B alloy sputtering target having an island-shaped rolled structure formed from a Co-rich phase based on a primary crystal formed

upon casting. In addition, claim 1 requires a Co-rich phase and B-rich phase island structure based on an eutectic structure formed upon solidification between the island-shaped structures formed from the Co-rich phase based on the primary crystal. It is clear that JP '623 fails to teach, suggest, or disclose a Co-rich phase island structure and a Co-rich phase and B-rich phase island structure recited in claim 1 and shown in FIG. 2 of the present application.

Still further, the cells and the boride network of JP '623 provide a structure with uniform organization. See Paragraph No. 0005 and the FIGURE of JP '623. In contrast, the "island-shaped structures" illustrated in FIG. 2 of the present application extend in a rolling direction and are otherwise randomly distributed throughout the target.

Accordingly, it is clear that there are structural differences between the target required by JP '623 and the target disclosed and claimed by the present application. Applicants respectfully submit that the disclosure of the structure of a target having dendrite compartmented by a boride network as provided by JP '623 does not render obvious the structure required by the claims of the present application. Further, one of ordinary skill in the art following the teachings of JP '623 has no common sense reason for altering, combining, etc. method steps in any manner which ultimately does not produce a structure in which cells of dendrite are compartmented by and within a continuously-extending boride network or web.

Turning to the secondary reference, JP '860, it discloses a Co-Pt-B target having a structure in which the boride is explicitly required to be dispersed, distributed and organized in layers within the target. For example, see the Abstract and Paragraph Nos. 0007, 0011 and 0024 of JP '860.

The structure of the present invention is significantly different than that disclosed and required by JP '860. The structure of the sputtering target of the present invention does not include organized layers of boride uniformly distributed throughout the target. Rather, claim 1

of the present application requires a Co-Cr-Pt-B alloy sputtering target having an island-shaped rolled structure formed from a Co-rich phase based on a primary crystal formed upon casting. In addition, claim 1 requires a Co-rich phase and B-rich phase island structure based on an eutectic structure formed upon solidification between the island-shaped structures formed from the Co-rich phase based on the primary crystal. It is clear that JP '860 fails to teach, suggest, or disclose a Co-rich phase island structure and a Co-rich phase and B-rich phase island structure recited in claim 1 and shown in FIG. 2 of the present application.

Accordingly, it is clear that there are structural differences between the target required by JP '860 and the target disclosed and claimed by the present application. Applicants respectfully submit that the disclosure of the structure of a target having dendrite compartmented by a boride network as provided by JP '623 or a structure requiring the uniform distribution of boride in layers throughout the target do not render obvious the structure required by the claims of the present application. Due to the significant structural differences between the JP '623 and JP '860, Applicants respectfully submit that one of ordinary skill in the art would not find any combination of JP '623 with JP '860 to be obvious.

Further, one of ordinary skill in the art following the teaches of JP '623 and JP '860 have no common sense reason for altering, combining, etc. method steps in any manner which ultimately does not produce a structure in which dendrites (or cells) are compartmented by a continuously-extending boride network or which does not produce a uniform distribution of boride in layers throughout the target. Thus, one of ordinary skill in the art would have no common sense reason for combining various method steps disclosed by these references for the purpose of producing a structure that is neither disclosed nor contemplated by these references.

Of course, sputtering targets having different structures will have different deposition properties during sputtering. Thus, the sputtering targets of JP '623 and JP '860 will not possess

the same operation and effect as the present invention, and the sputtering target of the present invention would not have been obvious to devise at the time of the invention based on one of ordinary skill in the art following the teachings of these prior art references. One of ordinary skill in the art would clearly not deviate from the teachings of JP '623 with respect to producing dendrites (or cells) compartmented by a continuously-extending boride network or from the teachings of JP '860 with respect to producing a uniform distribution of boride in layers throughout the target.

For these reasons, Applicants respectfully request reconsideration and removal of the 35 USC §103(a) rejection of claims 1, 2 and 7-14 as being obvious over JP '623 in view of JP '860.

## **II. New Claims**

New claims 15-20 have been added for the Examiner's consideration. No new matter was added.

The subject matter of claim 15 is disclosed by the subject matter of claims 1, 2 and 7-14, as pending. With respect to the maximum magnetic permeability limitation, see page 5, line 15, of the present application, as filed. With respect to the limitation requiring the island-shaped rolled structures to extend in a direction of rolling, see page 4, lines 10-18, of the present application, as filed. Applicants respectfully submit that this limitation is in direct conflict with the use of cross-rolling required by the cited prior art.

The subject matter of claim 16 is disclosed on page 6, Table 1, under the subheading "Island Structure" for Examples 1 to 5, of the present application, as filed.

The subject matter of claim 17 is disclosed on page 7, lines 9-10, of the present application, as filed.

The subject matter of claim 18 is disclosed on page 6, Table 1, under the subheading “In-Plane Variation of Coercive Force” for Examples 1 to 5, of the present application, as filed, and the subject matter of claim 19 is disclosed on page 6, Table 1, under the subheading “Coercive Force” for Examples 1 to 5, of the present application, as filed.

The subject matter of claim 20 is disclosed on page 5, lines 23-24, of the present application, as filed.

### **III. Conclusion**

In view of the above amendments and remarks, Applicants respectfully submit that the claim rejections have been overcome and that the present application is in condition for allowance. Thus, a favorable action on the merits is therefore requested.

Please charge any deficiency or credit any overpayment for entering this Amendment to our deposit account no. 08-3040.

Respectfully submitted,  
Howson & Howson LLP  
Attorneys for Applicants

By           /William Bak/            
William Bak  
Reg. No. 37,277  
501 Office Center Drive  
Suite 210  
Fort Washington, PA 19034  
(215) 540-9216